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Michael W. Hazen Vice President Infrastructure Operations Chief Security Officer

Mr. James W. Todd Assistant Manager for Engineering U. S. Department of Energy National Nuclear Security Administration Sandia Field Office P. O. Box 5400 Albuquerque, NM 87185

Dear Mr. Todd:

Subject: Submittal of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs)
Annual Long-Term Monitoring and Maintenance Report for Calendar Year 2016, Sandia
National Laboratories/New Mexico (SNL/NM), Environmental Protection Agency (EPA)
Identification Number NM5890110518

The SWMUs and AOCs Annual Long-Term Monitoring and Maintenance Report for 2016 is being provided to the Department of Energy (DOE) for submittal to the New Mexico Environment Department (NMED) Hazardous Waste Bureau. This submittal satisfies the annual reporting requirement in Permit Attachment M, Section M.4 of the Hazardous Waste Facility Operating Permit for SNL/NM.

I have signed the certification to be sent to the NMED as the Operator at SNL/NM. If you agree, please sign the certification as the Owner. If you have any questions regarding the enclosed document, please contact Jaime Moya, at 505-844-7955, Johnathon Huff, at 505-844-1046, or Pam Puissant, at 505-844-3185.

Sincerely,





Enclosures:

- 1. Enclosure A –Solid Waste Management Units and Areas of Concern Annual Long-Term Monitoring and Maintenance Report for Calendar Year 2016, Sandia National Laboratories, EPA ID No. NM5890110518
- 2. Submittal of Solid Waste Management Units and Areas of Concern Annual Long-Term Monitoring and Maintenance Report for Calendar Year 2016, Certification Statement

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Submittal of Chemical Waste Landfill Annual Post-Closure Care Report Calendar Year 2016 Chemical Waste Landfill Post-Closure Care Permit

Sandia National Laboratories Albuquerque, New Mexico EPA ID No. NM5890110518

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Michael W. Hazen, Vice-President Sandia Corporation	Date signed
Albuquerque, New Mexico Operator	
James W. Todd, Assistant Manager	Date signed
U.S. Department of Energy	
National Nuclear Security Administration	
Sandia Field Office	

Owner

Enclosure A

Solid Waste Management Units and Areas of Concern Annual Long-Term Monitoring and Maintenance Report for Calendar Year 2016, Sandia National Laboratories, EPA ID No. NM5890110518



SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN ANNUAL LONG-TERM MONITORING & MAINTENANCE REPORT FOR CALENDAR YEAR 2016

SANDIA NATIONAL LABORATORIES, NEW MEXICO

MARCH 2017





United States Department of Energy Sandia Field Office

ANNUAL LONG-TERM MONITORING AND MAINTENANCE REPORT FOR CALENDAR YEAR 2016, MARCH 2017

Facility: Solid Waste Management Units and Areas of Concern

Location: Sandia National

Laboratories Albuquerque,

New Mexico

EPA ID No.: NM5890110518

Permit Basis: Resource Conservation and Recovery Act Facility Operating

Permit, effective February 26, 2015.

Owner: United States Department of

Energy Sandia Field Office

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ACRONYMS AND ABBREVIATIONS

AOC Area of Concern

DOE U.S. Department of Energy

U.S. Environmental Protection Agency EPA

KAFB Kirtland Air Force Base

Long-Term Monitoring and Maintenance LTMM

New Mexico Administrative Code **NMAC NMED** New Mexico Environment Department Permit

RCRA Facility Operating Permit

Resource Conservation and Recovery Act RCRA

Sandia Corporation Sandia

Sandia National Laboratories, New Mexico SNL/NM

SWMU Solid Waste Management Unit This page intentionally left blank.

EXECUTIVE SUMMARY

Long-term controls were maintained at 21 Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) in accordance with the requirements of the "Long-Term Monitoring and Maintenance Plan for SWMUs and AOCs Granted Corrective Action Complete with Controls" in Attachment M of the Resource Conservation and Recovery Act Facility Operating Permit, which took effect February 26, 2015.

Maintenance and controls at these SWMUs and AOCs are described and documented in this report. Conditions requiring maintenance or repair activities were not identified for any of the inspected SWMUs or AOCs. Based upon the inspections performed and site conditions observed, the administrative and physical institutional controls in place at the SWMUs and AOCs are effectively providing continued protection of human health and the environment.

This report does not present monitoring and maintenance activities for SWMU 76, the Mixed Waste Landfill; those activities adhere to the approved MWL LTMM Plan, Section 4.8.1 requiring a separate annual report which will be submitted to the NMED by June 30, 2017.

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1.0 INTRODUCTION

Sandia National Laboratories is a multi-mission engineering and science laboratory owned by the U.S. Department of Energy (DOE)/National Nuclear Security Administration and managed and operated by Sandia Corporation (Sandia), a wholly-owned subsidiary of Lockheed Martin Corporation. Sandia National Laboratories, New Mexico (SNL/NM) is located within the boundaries of Kirtland Air Force Base (KAFB), immediately southeast of the City of Albuquerque in Bernalillo County, New Mexico (Figure 1-1).

DOE and Sandia have completed corrective actions necessary to protect human health and the environment from any releases of hazardous waste or hazardous waste constituents at 303 Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) located at SNL/NM. Long-term controls are necessary for continued protection of human health and the environment at 22 of the SWMUs and AOCs that have undergone corrective action. These SWMUs and AOCs, together with the controls required for each, are specified in the Resource Conservation and Recovery Act (RCRA) Facility Operating Permit (Permit) issued by the New Mexico Environment Department (NMED) on January 27, 2015 (NMED January 2015) and took effect February 26, 2015 (Roberts January 2015).

1.1 Background

Corrective action and continued management of SWMUs and AOCs approved by the NMED as Corrective Action Complete with Controls status are conducted in accordance with the New Mexico Administrative Code (NMAC), Title 20, Chapter 4, Part 1, Section 500 (20.4.1.600 NMAC), incorporating Title 40 of the Code of Federal Regulations (CFR), Part 264 and the following documents:

- SNL Compliance Order on Consent (NMED April 2004); and,
- RCRA Permit, Number NM5890110518 (NMED January 2015), as revised and updated.

Each SWMU and AOC at SNL/NM is listed in one of four tables that comprise the RCRA Permit Attachment K "Solid Waste Management Units and Areas of Concern." The 22 SWMUs and AOCs requiring controls are listed in Table K-3 "Solid Waste Management Units and Areas of Concern for which Corrective Action is Complete with Controls." The requirements for maintenance of long-term controls at the SWMUs and AOCs listed in Table K-3 are specified in Permit Attachment M "Long-Term Monitoring and Maintenance Plan for Solid Waste Management Units and Areas of Concern Granted Corrective Action Complete with Controls."

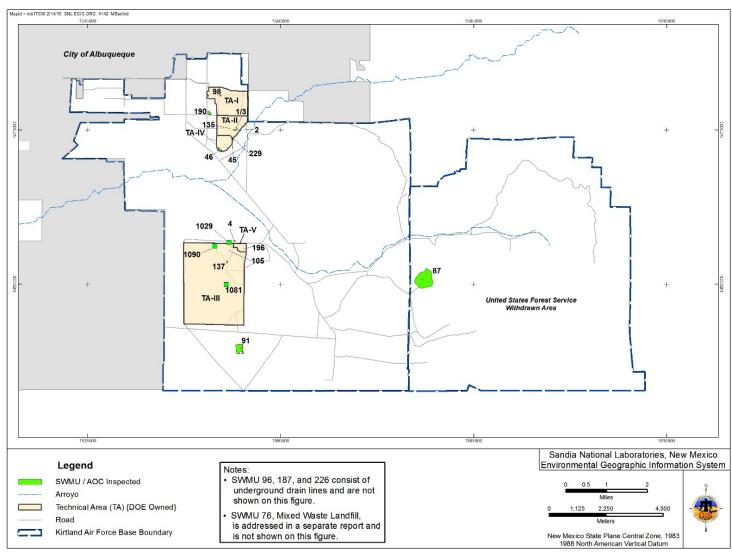


Figure 1-1

Location of Solid Waste Management Units and Areas of Concern for which Corrective Action is Complete with Controls, Sandia National Laboratories, New Mexico

1.2 Purpose and Scope

The purpose of this SWMU and AOC Annual Long-Term Monitoring and Maintenance (LTMM) Report is to document maintenance of controls, and activities conducted during 2016. The reporting period extends from January 1 to December 31 each calendar year. The SWMUs and AOCs that are addressed in this LTMM Report are listed in Table 1-1 and shown on Figure 1-1. This report does not present monitoring and maintenance activities for SWMU 76, the Mixed Waste Landfill; those activities adhere to the approved MWL LTMM Plan, Section 4.8.1 requiring a separate annual report which will be submitted to the NMED by June 30, 2017.

Table 1-1
Solid Waste Management Units and Areas of
Concern in the Long-Term Monitoring and
Maintenance Report Sandia National Laboratories,
New Mexico

SWMU or AOC Number	SWMU or AOC Name		
1	Radioactive Waste Landfill		
2	Classified Waste Landfill (TA-II)		
3	Chemical Disposal Pit		
4	LWDS Surface Impoundments		
45	Liquid Discharge (Behind TA-IV)		
46	Old Acid Waste Line Outfall		
87	Building 9990 Firing Site		
91	Lead Firing Site (Thunder Range)		
96	Storm System Drain		
98	Building 863 (TCA, Photochemical Releases: Silver Catch Boxes)		
105	Mercury Spill (Building 6536)		
135	Building 906 Drain System		
137	Building 6540/6542 Septic System (TA-III)		
187	Septic Tank Piping for POTW		
190	Steam Plant Tank Farm		
196	Building 6597 Cistern (TA-V)		
226	Old Acid Waste Line		
229	Storm Drain System Outfall (for TA-II)		
1029	Building 6584 North Septic System (TA-III)		
1081	Building 6650 Septic System (TA-III)		
1090	Building 6721 Septic System (TA-III)		

Notes:

AOC = Area of Concern.

LWDS = Liquid Waste Disposal System.
POTW = Publicly Owned Treatment Works.
SWMU = Solid Waste Management Unit.

TA = Technical Area.
TCA = 1,1,1-trichloroethane.

1.3 Report Organization

This report is organized as follows:

- Chapter 1 presents background information, purpose and scope, and report organization.
- Chapter 2 provides a summary of controls, surveillance, and maintenance requirements specified in Permit Attachment M.
- Chapter 3 presents the results of the inspections performed during the reporting period.
- Chapter 4 presents a general summary and conclusions for the 2016 reporting period.
- Chapter 5 lists the references cited in this report.

2.0 CONTROLS AND SURVEILLANCE REQUIREMENTS

Measures to be taken to provide protection of human health and the environment are defined in Permit Attachment M. The measures include surveillance of site conditions and maintenance of institutional controls. The controls are consistent with the risks presented by the site conditions and constituents of concern at each SWMU and AOC. The controls are implemented in an integrated and layered approach to enhance their effectiveness and reliability, and to provide continued protection in the event that one or more controls become temporarily impaired.

The required administrative and physical controls are described in Permit Attachment M, Section M.2 "Institutional Controls," and are summarized in Section 2.1 and 2.2 respectively. Maintenance requirements are described in Section M.3 "Maintenance of Institutional Controls," and are covered in Section 2.3 of this report.

2.1 Administrative Controls and Surveillance Requirements

Administrative controls for the SWMUs and AOCs in Table 1-1 include information management, awareness, and restrictions on future land use. Information about each SWMU and AOC includes:

- Site location and characteristics;
- Site history and corrective action;
- Land use permits or agreements with KAFB;
- Documentation of current site conditions, including information from annual inspections;
- Type of controls;
- Maintenance records;
- Planning information, including restrictions on future activities at the site; and
- Copies of reports previously submitted to NMED.

The information is to be maintained, and plans for future DOE and Sandia activities at or near each SWMU and AOC in Permit Table K-3 are to be evaluated during planning stages to identify aspects that are not consistent with industrial land use.

2.2 Physical Controls and Inspection Requirements

Physical controls for the SWMUs and AOCs in Table 1-1 include the following:

- Warning and information signs posted at each SWMU/AOC where feasible;
- Fences that restrict access to some or all of each SWMU/AOC;
- Physical features such as subsurface location (e.g., sewer lines); and
- · Limiting land use to industrial activities.

The specific controls and surveillance requirements are listed in Permit Attachment M, Table M-1 "Summary of Institutional Controls for Solid Waste Management Units and Areas of Concern Requiring Controls." They are also summarized in Table 2-1 of this report.

Annual inspections are to be performed (except as noted in Table 2-1) to verify that physical controls are in place, and to determine whether adverse conditions exist at each SWMU or AOC that would impair the controls or lead to inadvertent exposure to hazardous wastes or hazardous waste constituents.

2.3 Maintenance Requirements

The physical controls (e.g. signs) for the SWMUs and AOCs are to be maintained and repaired in a timely manner as specified in Permit Attachment M, Table M-2 "Maintenance Schedule." Maintenance is to occur on the schedule in Table M-2 unless weather or other site-specific conditions result in a delay. Each repair is to be reviewed in a follow-up inspection within 180 days. The follow-up inspection may be combined with an annual inspection.

The maintenance requirements and schedule are summarized in Table 2-2.

Table 2-1
Summary of Physical Controls and Surveillance Requirements
Solid Waste Management Units and Areas of Concern
Sandia National Laboratories, New Mexico

SWMU or AOC Number	Signs and Postings	Inspection Frequency	Additional Information
1	4 signs on SWMU perimeter, one each in selected corners of the SWMU.	Annual	N/A
2	5 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A
3	Included with SWMU 1.	Annual	Located adjacent to SWMU 1.
4	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A
45	5 signs on SWMU perimeter, one in approximately each corner of the SWMU outside of the TA-IV fence.	Annual	Western half of the SWMU is located within the TA-IV fenced boundary.
46	4 signs along the TA-IV fence line and 7 signs posted along the south and west perimeter of the SWMU.	Annual	N/A
87	4 signs, one at the access road and three on the perimeter of the SWMU.	Annual	N/A
91	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A
96	None	None	SWMU consists of underground storm drains throughout TA-I. No signs, postings, or inspections are feasible due to SWMU features.
98	None	Annual	SWMU consists of subsurface area located under a building. No signs, postings, or inspections are feasible due to SWMU features.

See footnotes at end of table.

Table 2-1 (Concluded) Summary of Physical Controls and Surveillance Requirements Solid Waste Management Units and Areas of Concern Sandia National Laboratories, New Mexico

SWMU or AOC Number	Signs and Postings	Inspection Frequency	Additional Information
105	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A
135	1 sign	Annual	N/A
137	4 signs on SWMU perimeter, one each at selected corners of the SWMU.	Annual	N/A
187	None	None	SWMU consists of underground sewer lines throughout TA-I. No signs, postings, or inspections are feasible due to SWMU features.
190	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A
196	1 sign near the northeast corner of the SWMU.	Annual	N/A
226	None	None	SWMU consists of underground drain line throughout TA-I, II, and IV. No signs, postings, or inspections are feasible due to SWMU features.
229	1 sign at the top of the outfall.	Annual	N/A
1029	3 signs on SWMU perimeter.	Annual	N/A
1081	3 signs on SWMU perimeter.	Annual	N/A
1090	1 sign, approximately in the middle of the SWMU.	Annual	N/A

Notes:

AOC = Area of Concern. N/A = Not applicable.

SWMU = Solid Waste Management Unit.

TA = Technical Area.

Table 2-2 Solid Waste Management Units and Areas of Concern Maintenance Schedule Sandia National Laboratories, New Mexico

Maintenance Issue	Response Schedule
Erosion, seepage, or subsidence	Evaluate severity and if necessary develop mitigation plan within 120 days
	Complete in a timely manner
Newly-occurring or newly-discovered contamination	See Permit Part 8
	Begin to address within 30 days
Signs	Complete in a timely manner
Activities that are inconsistent with site	Begin to address within 30 days
restrictions	Complete in a timely manner
Awareness measures to address new residential activities adjacent to	Develop measures within 30 days
SWMU/AOC locations	Implement measures in a timely manner
Access restrictions to address new residential activities adjacent to	Develop measures within 60 days
SWMU/AOC locations	Implement measures in a timely manner

Notes:

AOC = Area of Concern.

SWMU = Solid Waste Management Unit.

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3.0 INSPECTIONS, MAINTENANCE, AND REPAIR ACTIVITIES

This chapter presents a summary of inspection, maintenance, and repair activities conducted during the reporting period January through December 2016. Each SWMU or AOC with an "Annual" designation in Table 2-1 was inspected during 2016. Issues noted during inspection, together with maintenance and repair activities, are summarized in Table 3-1 and discussed below.

3.1 Maintenance of Administrative Controls

The information about each SWMU and AOC was maintained during 2016 and reviewed as needed during planning activities. Specific activities included:

- Reviewing information from annual inspections to determine whether maintenance or repairs were needed;
- Reviewing approximately 50 plans for future activities at or near the SWMUs and AOCs to verify that the planned activities would not compromise the controls in place; and
- Following each review, notifying the appropriate personnel of the controls at SWMUs and AOCs at or near the planned activities, and the actions needed to avoid compromising the controls.

3.2 Inspection Activities

Personnel inspected each SWMU and AOC (except where not feasible as noted in Table 2-1) during the late spring and summer months of 2016. During each inspection, personnel walked over the SWMU or AOC and recorded observations of the site perimeter and internal site areas. Large SWMUs and AOCs were inspected by following a grid pattern across the site.

Personnel monitored and recorded the following information:

- Condition of site;
- Evidence of erosion, seepage or subsidence;
- Evidence of newly-occurring or newly-visible contamination;
- Condition and location of signs;
- Evidence of activities that were not consistent with the restrictions in place; and
- Evidence of any residential activities adjacent to the given SWMU or AOC that would necessitate additional awareness measures and access restrictions for the site.

Table 3-1
Summary of 2016 Inspection Results and Maintenance at
Solid Waste Management Units and Areas of Concern Requiring Controls
Sandia National Laboratories, New Mexico

SWMU or AOC Number	Inspection Completion Date	Required Maintenance	Maintenance Performed	Maintenance Completion Date	Other Conditions or Events
1	4/25/16	None	N/A	N/A	None observed
2	4/25/16	None	N/A	N/A	None observed
3	4/25/16	None	N/A	N/A	None observed
4	8/10/16	None	N/A	N/A	None observed
45	7/12/16	None	N/A	N/A	None observed
46	7/12/16	None	N/A	N/A	None observed
87	8/16/16	None	N/A	N/A	None observed
91	9/6/16	None	N/A	NA	None observed
98	7/6/16	None	N/A	N/A	None observed
105	7/27/16	None	N/A	N/A	None observed
135	4/25/16	None	N/A	N/A	None observed
137	7/27/16	None	N/A	N/A	None observed
190	4/28/16	None	N/A	N/A	None observed
196	8/10/16	None	N/A	N/A	None observed
229	7/12/16	None	N/A	N/A	None observed
1029	7/27/16	None	N/A	N/A	None observed
1081	7/27/16	None	N/A	N/A	None observed
1090	7/27/16	None	N/A	N/A	None observed

Notes:

AOC = Area of Concern N/A = Not applicable

SWMU = Solid Waste Management Unit

Note: Sites 96, 187, and 226 were not inspected because these SWMUs consist of underground drain lines. Inspections are not feasible.

Inspection records are maintained in the Operating Record at SNL/NM, in accordance with the Permit requirements.

3.3 Inspection Results

Table 3-1 summarizes the results of the 18 annual inspections. Three subsurface sites, SWMUs 96, 187, and 226 could not be inspected, as noted in Table 2.1. SWMU 98 is also a subsurface site, as noted in Table 2.1. However, Permit Attachment M, Table M-1, specifies an annual inspection; therefore, an annual inspection of the building perimeter was conducted.

There were no maintenance requirements or concerns, such as erosion or subsidence, observed during the 2016 annual inspections.

3.4 Status of Maintenance and Repair Activities

As noted in Table 3-1, there were no required maintenance or repair activities identified in 2016.

3.5 Other Conditions or Events

During each inspection, personnel observed the adjacent areas. No activities inconsistent with site restrictions were observed during the site inspections. No evidence of residential activities was noted adjacent to any of the inspected SWMUs or AOCs.

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4.0 SUMMARY AND CONCLUSIONS

During 2016, maintenance and inspections of long-term controls at SWMUs and AOCs was performed as described and documented in this report.

Conditions requiring maintenance or repair activities were not observed at any of the inspected SWMUs or AOCs during 2016.

Personnel associated with approximately 50 planned projects at SNL/NM were notified of controls associated with SWMUs and AOCs so that the controls would not be impacted by the planned activities.

Based upon the inspections performed and site conditions observed, the administrative and physical institutional controls in place at the SWMUs and AOCs are effectively providing continued protection of human health and the environment.

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5.0 REFERENCES

Roberts, K., January 2015. "Final Permit Decision and Response to Comments on SNL Hazardous Waste Permit and Proposals to Grant Corrective Action Complete for 24 SWMUs and AOCs, Sandia National Laboratory, EPA ID Number NM5890110518, No. HWB-SNL-02-002," January 27, 2015.

New Mexico Environment Department (NMED), April 2004. "Compliance Order on Consent Pursuant to the New Mexico Hazardous Waste Act § 74-4-10," prepared by the New Mexico Environment Department in the matter of Respondents U.S. Department of Energy and Sandia Corporation, Sandia National Laboratories, Bernalillo County, New Mexico. April 29, 2004.

New Mexico Environment Department (NMED), January 2015. "Resource Conservation and Recovery Act Facility Operating Permit EPA ID Number NM5890110518 Issued to the US Department of Energy/Sandia Corporation for the Sandia National Laboratories Hazardous and Mixed Waste Treatment and Storage Units and Post-Closure Care of the Corrective Action Management Unit", January 27, 2015.

Sandia National Laboratories, New Mexico (SNL/NM), March 2012. "Long-Term Monitoring and Maintenance Plan for the Mixed Waste Landfill," Environmental Restoration Operations, Sandia National Laboratories, Albuquerque, New Mexico.

Blaine, T. (New Mexico Environment Department), January 2014. Letter to G.L. Beausoleil (U.S. Department of Energy NNSA/Sandia Site Office) and S. Andrew Orrell (Sandia National Laboratories/New Mexico), "Approval, Mixed Waste Landfill Long-Term Monitoring and Maintenance Plan, March 2012, Sandia National Laboratories, EPA ID# NM5890110518, HWB-SNL-12-007," January 8, 2014.

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